

# **Five-Year Review Report**

## **Second Five-Year Review Report for Smuggler Mountain Superfund Site Pitkin County, Colorado**

**September 2002**

**Prepared By:**

**REGION VIII  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
DENVER, COLORADO**

Approved by:

Date

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*-signed-*  
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*September 25, 2002*

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## **List of Acronyms**

AOC	Administrative Order on Consent
ARARS	Applicable or Relevant and Appropriate Requirements
CD	Consent Decree
CDPHE	Colorado Department of Public Health & Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EE/CA	Engineering Evaluation/Cost Analysis
ESD	Explanation of Significant Differences
GAC	Granular Activated Carbon
GPM	Gallons Per Minute
HASP	Health and Safety Plan
IC	Institutional Control
IGA	Intergovernmental Agreement
MCLs	Maximum Contaminant Levels
MSL	Mean Sea Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU <sub>s</sub>	Operable Units
PRP	Potentially Responsible Party
RAL <sub>s</sub>	Risk Action Levels
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SSC	Superfund State Contract
UC	University of Cincinnati

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## **Executive Summary**

EPA Region 8 has conducted a second five-year review of the remedial actions implemented at the Smuggler Mountain Superfund Site (Site) located in Pitkin County, Colorado. The review was conducted from January through September 2002. The results of the five-year review indicate that the remedy is protective of human health and the environment. Institutional controls (ICs) for OU 1, related to excavation of contaminated soils, are in full force and effect and in accordance with the OU 1 Consent Decree. OU 2, the mining area, is being properly maintained and is in accordance with the OU 2 AOC. A few deficiencies that do not immediately impact the protectiveness of the remedy were identified.

During the site inspection on August 16, 2002, it was found that there were no protocols for visual inspection of the OU 1 residential area nor to remind residents of the procedures required under the IC ordinances passed by the City of Aspen and Pitkin County. Pitkin County, the PRP for OU 1, will need to visually inspect the residential area for ordinance compliance once a month during no-snow months. It will also need to send notices, detailing ordinance requirements, to residents living within OU 1 by April 2003.

Inspection of OU 2 revealed that access controls may not be as effective as needed. Beer cans were seen in different areas of the mine indicating that there had been unauthorized entrance into the mine site. Wright & Preusch Mining, the PRP for OU 2, will need to complete the watchman's quarters within a year of this report to further ensure that effective access controls are in place.

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## Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Smuggler Mountain Superfund Site		
EPA ID (from WasteLAN): COD980806277		
Region: 8	State: CO	City/County: Aspen/Pitkin County
SITE STATUS		
NPL status: <input type="checkbox"/> Final <input checked="" type="checkbox"/> Deleted <input type="checkbox"/> Other (specify) _____		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
Multiple OUs? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Construction completion date: September 26, 1996	
Has site been put into reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
REVIEW STATUS		
Reviewing agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
Author name: Armando Saenz		
Author title: Remedial Project Manager	Author affiliation: EPA Region 8	
Review period: January 2002 to September 2002		
Date(s) of site inspection: 8/16/2002		
Type of review: <input checked="" type="checkbox"/> Statutory <input type="checkbox"/> Policy    ( <input type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-Sara <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion)		
Review number: <input type="checkbox"/> 1(first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <input type="checkbox"/> Actual RA Onsite Construction at OU # ____ <input type="checkbox"/> Actual RA Start at OU# ____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify) _____		
Triggering action date (from WasteLAN): 11/7/97		
Due date (five years after triggering action date): 11/7/02		



## Five-Year Review Summary Form

### Deficiencies:

Three general deficiencies were identified:

1. **Visual Inspections for IC Compliance.** During the site inspection, it was found that there was no consistent protocol for visual inspection of the OU 1 residential area for ordinance (i.e. IC) compliance.
2. **Periodic Notices of Ordinances.** During the site inspection, it was found that there was no protocol to remind residents in OU 1 of the procedures required under the ordinances passed by the City of Aspen and Pitkin County related to ICs.
3. **Access Controls for OU 2.** Inspection of OU 2 revealed that access controls may not be as effective as needed. Beer cans were seen in different areas of the mine indicating that there had been unauthorized entrance into the mine site.

None of these deficiencies currently cause the remedy to be not protective.

### Recommendations and Follow-up Actions:

With EPA oversight, the corresponding recommendations/follow-up actions are as follows:

1. **Visual Inspections for IC Compliance.** Pitkin County will need to inspect the OU 1 residential area for ordinance compliance once a month during no-snow months.
2. **Periodic Notices of Ordinances.** Pitkin County will need to send notices, detailing ordinance requirements, to residents living within OU 1 by April 2003.
3. **Access Controls for OU 2.** Wright & Preusch Mining will need to complete the watchman's quarters within a year of this report to further ensure that effective access control are in place.

### Protectiveness Statement(s):

The remedy at the Smuggler Mountain Superfund Site is protective of human health and the environment. Institutional controls for OU 1, related to excavation of contaminated soils, are in full force and effect and in accordance with the OU 1 Consent Decree. OU 2, the mining area, is being properly maintained and in accordance with the OU 2 AOC and the limited impact permit with the Colorado Mined Land Reclamation Board .

# **Smuggler Mountain Superfund Site Second Five-Year Review Report**

## **I. Introduction**

EPA Region 8 has conducted a second five-year review of the remedial actions implemented at the Smuggler Mountain Superfund Site located in Pitkin County, Colorado. This review was conducted from January through September 2002. This report documents the results of the review. The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify deficiencies found during the review, if any, and identify recommendations to address them.

This review is required by statute. EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for the Smuggler Mountain Superfund Site. The triggering action for this review is the completion of the first five-year review on November 7, 1997. Due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unrestricted use and unlimited exposure, another five-year review is required.

## **II. Background**

The Smuggler Mountain Superfund Site is located in northeastern Aspen, Pitkin County, Colorado. It is in the Roaring Fork River valley, on the southwestern flank of Smuggler Mountain. The Site is largely developed containing large and small condominiums, mobile

home parks, a tennis club and numerous single family residences. The Site was placed on the National Priorities List (NPL) on June 10, 1986.

Soil analyses in the early 1980's, conducted first by residents and later by EPA and the Potentially Responsible Parties (PRP's), identified concentrations of lead as high as 46,000 parts per million (ppm), well above EPA's cleanup level at the time of 1,000 ppm. Elevated levels of cadmium were also found in the soils of the site. The sources of the lead and cadmium are the waste rock and tailings (mine wastes) from the mines on Smuggler Mountain. These wastes are exposed, covered or mixed with native soils across the site.

The Site has been divided into two Operable Units (OUs) - OU1 and OU2. OU1 addresses the Smuggler Site and does not include the reclamation of the actual Smuggler Mine portion of the Site. It covers approximately 300 acres and lies on the northeastern edge of the town of Aspen. OU2 addresses the mine reclamation work and surface or ground water response actions. OU2 covers approximately 25 acres and lies on the upward slope of Smuggler Mountain, just north of OU1.

Three mine waste dumps, containing an estimated 22,000 cubic yards of mine wastes, are located on the mine site. Future mining activities at OU2 are expected to produce as much as 2,100 cubic yards of additional waste rock per year. These wastes will be placed on the existing dumps. The mine site dumps can accommodate the projected quantities of waste for the projected life of the mine without significantly changing the character of the dumps.

### **III. Remedial Actions & Implementation**

#### **Early Actions Performed**

A number of investigations have been undertaken at the site. An EPA Field Investigation Team sampled the site in 1983. This study was the result of a request by Pitkin County to characterize any human or environmental threat posed by abandoned mine tailings in the northeast quarter of the Aspen townsite.

Another study was sponsored by Western Slope Development Company on behalf of the Hunter Creek Condominiums, and a plan for surface covering and revegetation was developed for the areas surrounding the development (1985). Similar studies were conducted by other condominium developments in the area. In July 1985, discussions were held between a number of potentially responsible parties and EPA resulting in a Remedial Investigation/Feasibility Study (RI/FS). The RI/FS was conducted by Fred C. Hart Associates, Inc.

#### **Remedial Investigation/Feasibility Study**

The RI/FS Report was finished and released in March 1986. Environmental protection goals and remedial objectives used to analyze potential remedial alternatives called for an isolation of the

source of the contamination (lead in mine wastes) to prevent direct contact and the distribution of windblown dusts, along with the protection of potential ground water receptors. The recommended remedial action from the selection of two alternatives was surface sealing (capping) and grading. An RI/FS Addendum for OU 2 was issued on May 7, 1986, to characterize the nature and extent of contamination and determine the appropriate extent of remedy at the Smuggler-Durant Mine Site.

The contaminants of concern at the Smuggler site are primarily lead and cadmium in soils. Lead and Cadmium are hazardous substances within the meaning of CERCLA section 101(14), 42 U.S.C. § 9604(14). Potential and/or actual routes of exposure are direct ingestion of contaminated soils and inhalation of wind blown dust.

There are no surface water sources on or flowing through the area. Nor are there any significant gullies entering or leaving the area. Thus, there is little opportunity for exposure to potentially contaminated runoff. Additionally, there are no known threatened or endangered wildlife or plant species inhabiting the site.

### **ROD & ESD Findings & Cleanup Activities Performed**

In September 1986, a Record of Decision (ROD) was issued that divided the Site into two OUs. The OU 1 remedy was modified by several Explanations of Significant Differences (ESDs), the last of which was dated June, 1993. OU 1 is mostly residential. The remedy selected in the ROD was solely for OU 1, but OU 2 was briefly discussed. The mine site (OU 2) is not developed for residential use, but does include the Smuggler Mine on Smuggler Mountain. OU 2 is an ongoing mining operation and operations are expected to continue for the next 25-30 years and perhaps indefinitely. The remedy selection for OU 2 was documented in an Action Memorandum.

**Operable Unit 1.** The 1986 ROD for OU1 included:

- Source Isolation of High-Level Wastes - Creation of an on-site repository on County-owned property to permanently dispose of the high-level wastes (over 5000 ppm lead) excavated from the Site. The repository would have been under the long term care of Pitkin County. Consolidation of all high lead level wastes from the Site (excluding the mine site) was to be implemented in the repository. The repository would then have been capped with a multi-layer, stable cap satisfying RCRA performance standards for in-place closure (40 CFR Part 264, Subpart N).
- Source Isolation of Low-Level Wastes - Isolation of all low level lead contaminated wastes (defined as areas with soil lead concentrations of between 1000 and 5000 ppm lead) was to be implemented by capping in place with 6-12 inches of clean topsoil and revegetating.
- Increased Ground Water Monitoring - Monitor ground water quarterly on-site was

proposed for a period of five years to determine efficacy of the caps in enhancing ground water quality.

- Alternate Water Supply - EPA also believed that a permanent, alternate, water supply was necessary. Thus, EPA would have required closing of the ground water wells for 5-7 residences with hook-ups for the residences to the existing public water supply.
- Operation and Maintenance of Low- and High-Level Waste Caps - Long term maintenance and inspection of the repository was also included in the 1986 decision.

During the OU1 Remedial Design (RD), additional technical information showed that the remedy was not implementable due to the unexpectedly high volume of soils. The ROD was modified in the March 1989 ESD. This ESD described a plan to remove the top two feet of soils containing more than 1,000 ppm lead in the residential areas, an additional on-site repository for the extra volume of soil, and institutional controls to ensure the permanence of the remedy. However, the Aspen community found this remedy unacceptable and the plan was put on hold pending further investigation.

The Aspen community submitted an alternative proposal to EPA which resulted in a second ESD issued in May 1990. The May 1990 ESD included a greater reliance on Institutional Controls (ICs) and removal of 6 inches of contaminated soil in the Hunter Creek and Centennial Condominium areas. For individual properties, the protective cover of clean soil, placed over contaminated areas, would be reduced from two feet to a geotextile liner overlain with one foot of clean soil. Pitkin County adopted ICs in May, 1991, but they were repealed based upon citizen concerns about the need for any remedy at all.

EPA issued a Minor Modification to the remedy in October of 1991 that recognized that landowners could implement land use controls rather than local government. The modification provided for implementation of ICs by the adoption and enforcement of local ordinances by Pitkin County or the City of Aspen, by compliance with EPA approved Operation and Maintenance plans by private parties or by the use of EPA's enforcement authority.

Some citizens contended that the cleanup, with heavy equipment and dust, would be more hazardous than living with the health risk at the Site. To address the community's concerns, an independent panel, called a Technical Advisory Committee (TAC), was convened in October of 1992. The TAC included six nationally recognized lead experts and three technical advisors. It released a final report in January 1993. The June 1993 ESD was based on the TAC report..

The June 1993 ESD modified the ROD and previous ESDs. The OU 1 actions were to be implemented through a Partial Consent Decree with Pitkin County filed with the United States District Court for the District of Colorado on March 24, 1995, for civil action No. 89-C-1802. The final OU 1 remedy selected and ultimately implemented was:

- The Pitkin County Health Department agreed to a blood lead surveillance program for

young children and implemented an indoor dust sampling program over a two year period.

- The berm area was to be capped with clean soil and revegetated. Other common-use areas of exposed mine waste, including Mollie Gibson Park, were to be covered, revegetated and monitored.
- Vegetable gardens were required to be planted in at least 12 inches of clean soil.
- The Aspen/Pitkin Environmental Health Department was required to evaluate site construction projects or land use changes to determine whether they present a threat of soil exposure to young children.

EPA was also to make a final determination regarding remediation of the OU 1 residential soils based on EPA's review of completed lead speciation, bioavailability, and blood lead monitoring studies.

**OU 1 - Blood Lead Study.** Under the OU 1 June 1993 ESD, EPA was to make a final determination regarding remediation of the OU 1 residential soils based on EPA's review of completed lead speciation, bioavailability, and blood lead monitoring studies. The results of the soil bioavailability study may be found in the May 1996 preliminary report, "Bioavailability Of Lead In Soil Samples From The Smuggler Mountain NPL Site Aspen, Colorado." This study showed that bioavailability of predominately lead carbonate was near the EPA default of 30% (absolute) which further substantiated the need for a blood lead assessment to help ascertain potential future risks.

In 1996, the Pitkin County Health Department's contractor, the University of Cincinnati (UC), and EPA Region 8 designed a biological and environmental sampling study to identify blood lead levels in children associated with lead levels found in the children's play environment. This biomonitoring study was recommended by the TAC and included in the 1993 ESD. Children between the ages of 1 and 7 years were identified who lived in the more contaminated yards, and venous blood samples were obtained. At the same time the biological samples were obtained, environmental samples were taken (indoor and exterior dust, soil, water, and hand-wipes from the children).

To complete the requirement of identifying all pertinent facts surrounding the demographic element for the study, a survey was created to document all variables that might affect the results found in the blood study. In other words, all major sources and factors that might impact the blood lead levels found in the children were identified.

The schedule of events focused on obtaining the biological and environmental samples in the late Summer and early Fall of 1996 (and was partially repeated in the early Fall of 1997). This was done to optimize the time when the children had been exposed to their outside environment, and to maximize the level of lead they had obtained throughout the summer.

The final report summarizing the results of the blood lead study and incorporating data from previous studies was completed in October 1998. The report, titled "Blood Lead Surveillance and Exposure of Young Children to Elevated Soil Lead at the Smuggler Superfund Site, Aspen, CO - Final Report," was prepared by UC.

Additional analyses of the study were conducted by Gerry Henningsen, EPA Region 8 toxicologist. His findings can be found in a report titled "Further Assessment of Risks from Exposure to Lead in Soils at the Smuggler Superfund Site, Aspen, CO, Using a Weight of Evidence Approach," EPA Region 8, Denver, CO, May 1999 (Gerry Henningsen, Region 8 Toxicologist).

Both reports essentially conclude that children living on the Site are not at unacceptable risk due to exposure to lead in the soil. Although environmental lead levels are slightly elevated, and the EPA IEUBK modeling indicates some potential risk to children who are in contact with this lead, repeated screening of children shows no impact of this exposure on blood lead levels of children at the Site. Consequently, EPA has concluded that further remediation of the OU 1 soils is not needed to adequately protect human health.

**Operable Unit 2.** The 1986 ROD discussed mine reclamation and possible Ground-Water Corrective Action for OU 2:

1. Addendum to Remedial Investigation (RI)/Feasibility Study (FS) - An addendum to the existing RI/FS was to be prepared to characterize the nature and extent of contamination and determine the appropriate extent of remedy at the Smuggler-Durant Mine Site. (The Addendum was completed in May 1996.)
2. Possible Ground-Water Corrective Action - Groundwater quality data did not justify action, and ground water conditions were expected to improve after completion of the OU1 remedy. The decision of how to address the ground water was ultimately made in the 1993 OU 1 ESD. (It was concluded and the ESD stated that site conditions suggested that the groundwater contamination identified earlier was due to the high natural metals content in the soils, or the result of well materials. It was then concluded that the groundwater contamination was not a health threat and that groundwater remediation was not necessary).
3. Performance of Remedy - It was anticipated that some remedial actions would be necessary for the mine site, but no decision was made as to the nature of the remedial requirements in the 1986 ROD.

An Engineering Evaluation/Cost Analysis (EE/CA) was conducted for OU2 to determine the necessary remedial actions. The EE/CA was completed on January 25, 1995 and stated the following removal objectives: abate the threat of direct contact with lead contaminated soils and waste rock in mine waste dumps; abate the threat of inhalation of contaminated dust; abate the threat of migration of contamination via air and surface water; and attain applicable or relevant

and appropriate requirements (ARARS).

The remedial actions, outlined in an Action Memorandum dated April 19, 1995, were eventually made part of an Administrative Order on Consent with the mine owners in May 1995. An Action Memorandum was used because of the simplicity of the response action. The removal action selected in the OU2 Action Memorandum included the following:

- Regrading a part of mine dump #2 to drain back into the mountain.
- Cribbing the unstable, if any, portions of the toe of Dump #2. (This has turned out to be unnecessary.)
- Regrading the lower parking area to drain back into the mountain.
- Controlling dust emissions from dirt roads and the parking area by periodic spraying of a magnesium chloride dust suppressant solution.
- Extending the existing fence to restrict entry to the lower portion of the mine site.

All of the work was completed by September 1996, except for the second activity. The toe of Dump #2 was not unstable, therefore cribbing was not necessary.

Separate from the CERCLA work, the mine operators will later perform routine closure actions. Disturbed areas other than mine waste dumps and developed areas will be revegetated. Prior to cessation of mining activities, the fence will be extended around the entire mine area, and the roadway and parking area will be graveled or covered with asphalt.

### **Operation & Maintenance (O&M)**

**Operable Unit 1.** The OU 1 Operations and Maintenance Plan (O&M Plan) is represented in its entirety by the Institutional Controls (ICs) enacted for OU1 under the Consent Decree. After the signing of the Consent Decree, Pitkin County proposed amendments to the Pitkin County Code to enact ICs (Land Use Restrictions) for the Site. These ICs were reviewed and approved by EPA and enacted by the City of Aspen and Pitkin County to restrict the movement of contaminated soils in and from the Site and to aid in preserving the integrity of the remedy constructed at the Site. The agreed upon ICs are as follows:

1. No person shall undertake or conduct any activities or development within the Site involving the excavation or exposure of more than one (1) cubic yard of soil without first obtaining a permit from the Director.
2. Excavation and construction - Any disturbed soil or material that is to be stored above ground shall be securely contained on and covered with a durable non-permeable tarp or other protective barrier approved by the Aspen/Pitkin Environmental Health Department



so as to prevent the leaching of contaminated material onto or into the surface soil. Disturbed soil or material need not be removed if the Aspen/Pitkin Environmental Health Department finds that: (1) the excavated material contains less than 1,000 parts per million (ppm) of total lead, or (2) that there exists a satisfactory method of disposal at the excavation site. Disturbed soil and solid waste may be disposed of outside of the site upon acceptance of the material at a duly licensed and authorized receiving facility.

3. Dust Suppression - All activity or development shall be accompanied by dust suppression measures such as the application of water or other soil surfactant to minimize the creation and release of dust and other particulates into the air. The Aspen/Pitkin Environmental Health Department may require air monitoring to insure the effectiveness of dust suppression measures.
4. Vegetable and flower gardening or cultivation - No vegetables or flowers shall be planted or cultivated within the boundaries of the Site except in garden beds consisting of not less than twelve (12) inches of soil containing no more than 999 parts per million (ppm) lead.

With the OU 1 Consent Decree, The Pitkin County has indefinitely assured EPA and the State that all necessary ICs will be in full force and effect within the Site boundary. The Consent Decree also includes reopeners in the event that the County were to repeal or disregard these ordinances.

In November of 2001, an Intergovernmental Agreement (IGA) was formalized between Pitkin County and the City of Aspen. With the split up of the Aspen/Pitkin Environmental Health Department into separate city and county departments earlier in the year, it became necessary to define respective roles and responsibilities. An amendment to the OU 1 Consent Decree was not necessary and Pitkin County will remain the sole PRP to and primary contact for the Consent Decree.

**Operable Unit 2.** A recent amendment to the AOC provided EPA and the State with indefinite O&M assurances. As stated in the AOC Amendment, the O&M Plan, as defined by the EE/CA, Action Memorandum and original workplan, will provide for indefinite maintenance of runoff control, dust control, restricted site access and site reclamation measures. This O&M Plan will become effective upon the termination of the permit with the Colorado Mined Land Reclamation Board and will be implemented by the PRP, Wright and Preusch Mining, LTD.

### **Progress Since The Last Five-Year Review**

For the first five-year review, the remedy was found to be protective of human health and the environment and no deficiencies were noted. The Site was subsequently deleted from the NPL on September 23, 1999.

#### **IV. Five-Year Review Process**

The Smuggler Mountain Superfund Site five-year review was led by Armando Saenz, Remedial Project Manager for the Site. The following team members assisted in the review:

- Rob Henneke, EPA Community Involvement Coordinator
- Andy Lensink, EPA Attorney

The five-year review consisted of the following activities: a review of relevant documents; interviews; review of ARARS and O&M data; and, a site inspection. Notices that the five-year review was in progress were placed in the Aspen Times on August 9, 17 and 18, 2002. The notice of completion of the five-year report will be placed in the Aspen Times.

#### **V. Five Year Review Findings**

##### **Interviews**

The following individuals were interviewed during the five year site inspection on August 16, 2002 by Armando Saenz:

- **Thomas S. Dunlop, President, Dunlop Environmental Consulting, Inc.** Mr. Dunlop, former Environmental Health Director for Pitkin County, represented Pitkin County at the site inspection. Pitkin County is the Potentially Responsible Party (PRP) for OU 1.
- **Lee Cassin, Environmental Health Director for the City of Aspen.** Ms. Cassin's department is responsible for OU 1 institutional controls within city boundaries.
- **Gary A. Wright, Wright & Preusch Mining, Ltd.** Mr. Wright is Secretary and Treasurer for Wright & Preusch Mining, the PRP for OU 2.

**Thomas Dunlop.** The meeting with Mr. Dunlop and Ms. Cassin took place at the Mollie Gibson Park on August 16, 2002. Implementation of the Institutional Controls (ICs) set out in the OU 1 Consent Decree was discussed with a focus on the permit process. The process requires a property owner to fill out a permit form if movement of more than one cubic yard of contaminated soil will be necessary.

Site files (which Mr. Dunlop had with him from the Pitkin County Public Works & Natural Resources Division) and permits of various situations were reviewed and discussed. The files appeared to be complete and well organized. He agreed to send EPA copies of certain permits. The following are summaries of the requested documents which are compiled in Appendix A:

1. Blank permit form (A-1);
2. Soil removal permit that did not involve movement of contaminated soil off the property. The soil was disturbed, but left on the property (A-2);
3. Soil removal permit with two affidavits attached and copies of landfill tickets kept by Pitkin County to verify movement of soil from the property to the county landfill (A-3); and,
4. Hand written contact log sheet describing an enforcement action taken by Pitkin County after discovering that soil within the property was being moved without regard to ordinance requirements (A-4).

He explained that Pitkin County and the City of Aspen instituted a three-tiered process to enforce the IC ordinances. When a violation of ICs or other sections of the Consent Decree are noted, the following steps are activated:

1. Discovery of a violation require a verbal warning to the responsible party.
2. Warning for the same offense results in a written notice to the responsible party.
3. If there is no satisfactory response to the written notice, a summons (to appear before either the Municipal Court or the County Court) is sent to the responsible party (i.e. property owner). The jurisdiction of the court is dependent on where the violation took place.

Depending on the significance of the violation to human health and the environment, steps one and two can be bypassed. If the situation is dangerous and urgent enough, step three can be implemented without implementing steps one and two.

He stated that he believed that the enforcement process for OU 1 was effective in protecting human health and the environment. He emphasized that one of the major reasons for the success of the enforcement process is the strong partnership between Pitkin County, the City of Aspen and the community. Only two violations have required use of the first step.

**Lee Cassin.** Ms. Cassin essentially agreed with what Mr. Dunlop said at the meeting. She stated that there were too many checks and balances in the enforcement process for it not to be effective, given that two governmental agencies were involved.

**Gary Wright.** The meeting with Mr. Wright took place at his office in Aspen on August 16, 2002. O&M of the mine area (i.e. OU 2) was briefly discussed. He said that he did not think there were any significant problems with respect to runoff control, dust control, site access and site reclamation. OU 2 is essentially maintained on an as needed basis.

Wright & Preusch Mining, The OU 2 PRP, has a Limited Impact Mining Operation Permit (permit) with the Colorado Mined Land Reclamation Board. The permit and related files were reviewed and discussed. Given the files reviewed, Wright & Preusch Mining appeared to be in conformance with the administrative requirements of the permit.

The mining plan of the permit mentions construction of a "watchman's quarters" on the mine, but does not provide a due date. He mentioned that cash flow from the mine has not been sufficient enough to complete the quarters. Power and water lines have been installed on a landing where the quarters are going to be constructed, but no specific completion date was provided. He also mentioned that there is a person living in a trailer on the mine area on an irregular basis and implied that the person serves the same purpose as a watchman.

## **Site Inspection**

The Site was inspected on August 16, 2002. OU 2 was first inspected followed OU 1 including the Molly Gibson Park.

**Operable Unit 2.** OU 2 was inspected with respect to runoff control, dust control, site access and site reclamation. Although there was a lot of "junk" on the main mine bench, the mine area appeared to be well maintained. The four areas of interest seemed to have been adequately addressed.

Vegetation was thorough and abundant throughout the mine area. No signs of erosion were observed. Signs of regrading were also present. Roads leading up to and in the mine area appeared well maintained with no dust problems.

The fence surrounding the mine appeared to be in good condition. No significant effects of burrowing animals and erosion were observed. However, a few beer cans were observed throughout the mining area which could be construed as a sign of trespassing and furthers the need for a watchman's quarters.

**Operable Unit 1.** Molly Gibson Park was inspected first followed by the residential area. The park appeared very well maintained. The grass and trees (i.e. vegetative cover) looked healthy and there were no signs of erosion at the perimeter of the park.

The residential area was inspected with Tom Dunlop, President of Dunlop Environmental Consulting and former Environmental Health Director for Pitkin County. Three residents were informally encountered and their high regard for Mr. Dunlop was obvious. The "strong partnership" that Mr. Dunlop alluded to during the interview was noticeable.

All observed properties (including those previously addressed with permits) were properly maintained. No IC violations were encountered.

## **ARARs Review**

As part of the five-year review, Applicable and Relevant and Appropriate Requirements (ARARs) were reviewed. The primary purpose of this review was to determine if any newly promulgated or modified requirements of federal and state environmental laws have significantly

changed the protectiveness of the remedies implemented at the Site. The ARARs reviewed were those included in the Site's decision documents.

Overall, EPA found no newly promulgated or modified ARARs that would change the protectiveness of the remedies implemented at the Site. EPA will continue to monitor this Site and any future changes in ARARs will be reported in the next five-year review.

## **Data Review**

**Operable Unit 1.** A review of records during the site inspection and semi-annual reports received since 1995 indicates OU 1 is being managed as required by the Consent Decree.

**Operable Unit 2.** A review of records and the mine area during the site inspection indicates that OU 2 is being maintained as required by the Administrative Order on Consent and in accordance with the limited impact permit.

## **VI. Assessment**

The following conclusions support the determination that the remedy at the Smuggler Mountain Superfund Site is protective of human health and the environment.

### ***Question A: Is the remedy functioning as intended by the decision documents?***

- ***HASP/Contingency Plan:*** Both the HASP and the Contingency Plan are not pertinent to the Site because there is no active remedy in place.
- ***Implementation of Institutional Controls and Other Measures:*** With the OU 1 Consent Decree, Pitkin County has indefinitely assured EPA and the State that all necessary ICs will be in full force and effect within Site boundaries. The Consent Decree also includes reopeners in the event that the County were to repeal or disregard these ordinances. A review of records during the site inspection and semi-annual reports received since 1995 indicates OU 1 is being managed as required by the Consent Decree.

For OU 2, an amendment to the AOC in 1999 provided EPA and the State with indefinite O&M assurances. As stated in the AOC Amendment, the O&M Plan, as defined by the EE/CA, Action Memorandum and original workplan, will provide for indefinite maintenance of runoff control, dust control, restricted site access and site reclamation measures. This O&M Plan will become effective upon the termination of the permit with the Colorado Mined Land Reclamation Board and will be implemented by the PRP, Wright and Preusch Mining, LTD. Access controls are in place in the mine area including a fence and a warning sign. The Site fence is in good condition. A review of records and the mine area during the site inspection indicates that OU 2 is being maintained as required by the AOC and in accordance with the

limited impact permit.

There are no current or planned changes in land use at the Site.

- ***Remedial Action Performance:*** There is no active remedial action at the Site.
- ***System Operations/O&M:*** The OU 1 O&M Plan is represented in its entirety by the ICs enacted for OU1 under the Consent Decree. A review of records during the site inspection and semi-annual reports received since 1995 indicates OU 1 is being managed as required by the Consent Decree.

For OU 2, an amendment to the AOC in 1999 provided EPA and the State with indefinite O&M assurances. A review of records and the mine area during the site inspection indicates that OU 2 is being maintained as required by the AOC and in accordance with the limited impact permit.

- ***Cost of System Operations/O&M:*** No operation nor maintenance costs were provided.
- ***Opportunities for Optimization:*** There are no opportunities for optimization.
- ***Early Indicators of Potential Remedy Failure:*** No early indicators of potential remedy failure were noted during the review.

***Question B: Are the assumptions made at the time of the remedy selection still valid?***

- ***Changes in Standards:*** No newly promulgated or modified ARARs that would change the protectiveness of the remedies implemented at the Site were found.
- ***Changes in Exposure Pathways:*** No changes in the site conditions that affect exposure pathways were identified as part of the five-year review. First, there are no current or planned changes in land use. Second, no new contaminants, sources, or routes of exposure were identified as part of this five-year review. Finally, there is no indication that surface and/or hydrologic/hydrogeologic conditions are not adequately characterized.
- ***Changes in Toxicity and Other Contaminant Characteristics:*** Changes in toxicity and other factors for contaminants of concern since the time of the ROD and subsequent changes do not call into question the protectiveness of the remedy.
- ***Changes in Risk Assessment Methodologies:*** Changes in risk assessment methodologies since the time of the ROD and subsequent changes do not call into question the protectiveness of the remedy.

***Question C: Has any other information come to light that could call into question the protectiveness of the remedy?***

No additional information has been identified that would call into question the protectiveness of the remedy.

**VII. Deficiencies**

Deficiencies were discovered during the five-year review. None of these are sufficient to warrant a finding of not protective as long as corrective actions are taken. The following are the discovered deficiencies:

1. **Visual Inspections for IC Compliance.** During the site inspection, it was found that there was no consistent protocol for visual inspection of the OU 1 residential area for ordinance (i.e. IC) compliance.
2. **Periodic Notices of Ordinances.** During the site inspection, it was found that there was no protocol to remind residents in OU 1 of the procedures required under the ordinances passed by the City of Aspen and Pitkin County related to ICs.
3. **Access Controls for OU 2.** Inspection of OU 2 revealed that access controls may not be as effective as needed. Beer cans were seen in different areas of the mine indicating that there had been unauthorized entrance into the mine site.

**VIII. Recommendations and Follow-up Actions**

With EPA oversight, the corresponding recommendations/follow-up actions are as follows:

1. **Visual Inspections for IC Compliance.** Pitkin County will need to inspect the OU 1 residential area for ordinance compliance once a month during no-snow months.
2. **Periodic Notices of Ordinances.** Pitkin County will need to send notices, detailing ordinance requirements, to residents living within OU 1 by April 2003.
3. **Access Controls for OU 2.** Wright & Preusch Mining will need to complete the watchman's quarters within a year of this report to fulfill the mining plan of the limited impact permit and to further ensure that effective access controls are in place.

## **IX. Protectiveness Statements**

The remedy at the Smuggler Mountain Superfund Site is protective of human health and the environment. Institutional controls for OU 1 are in full force and effect and in accordance with the OU 1 Consent Decree. The mining area is being properly maintained and is in accordance with the OU 2 AOC.

## **X. Next Review**

This is a statutory site that requires ongoing five-year reviews. The next review will be conducted within five years of the completion of this five-year review report. The completion date is the date of the signature shown on the signature cover attached to the front of the report.



## **APPENDIX A**

### **Permit Documentation**

This section is not available online. Contact:

EPA Superfund Records Center  
999 18th Street, Suite 500  
Denver, CO 80202-2466  
(303) 312-6473  
or 1-800-227-8917 ext. 6473 (in Reg. 8 only)

to obtain these pages

